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CARDIOVASCULAR MRI IS EQUALLY EFFECTIVE AS TRANSESOPHAGEAL ECHOCARDIOGRAM IN EVALUATION OF LEFT ATRIAL APPENDAGE THROMBUS IN ATRIAL FIBRILLATION: A STRATEGY FOR PULMONARY VEIN ISOLATION

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Introduction: Patients with atrial fibrillation (Afib) routinely undergo TEE for evaluation of left atrial appendage (LAA) to rule out thrombus prior to undergoing cardioversion or pulmonary vein isolation. Cardiac MRI (CMR) is now increasingly used for evaluation of cardiac pts. We hypothesized that 2D and 3D non-contrast and contrast CMR is as effective as TEE in evaluating the LAA thrombus while providing simultaneous comprehensive non-invasive evaluation of the pulmonary vein anatomy within a single exam enabling pulmonary vein isolation (PVI) and routine LAA evalautions.

Methods: Afib Pts (n=68, male=54) underwent TEE and non-contrast and contrast CMR prior to undergoing an initial PVI procedure. CMR was performed on 1.5T GE (Milwaukee, WI) scanner and two blinded CMR experts analyzed the images. The CMR images were analyzed under two categories: 1) the 2D non-contrast cine images showing LAA in 2 chamber and orthogonal views 2) 3D atrial contrast source-images acquired during pulmonary vein angiogram. CMR variables evaluated were presence or absence of LAA thrombus, quality of images and data and was compared with the results of TEE in a blinded fashion.

Results: In 55% pts (n=38) the average interval between TEE and CMR was within 7±3 days and in the remaining pts, the mean interval was 3±1months. All pts (n=68) were analyzed for the evaluation of LAA thrombus (avg time: 35 min). All (100%) of patients were in atrial fibrillation and in all (100%) the images were of diagnositic quality (good correlation between the two CMR observers with only one grade difference when in disagreement). Thrombus was absent in 37 of 38 pts on TEE and CMR and present on 1 TEE and CMR (100% concordance). In 5 cases the 2D CMR images were inderminate where 3D contrast images were most helpful in the final ruleout of LAA thrombus.

Conclusion: CMR offers a comparable and equally specific alternative to TEE for the completely non-invasive evaluation of LAA thrombus in patients with atrial fibrillation without obligate need for sedation, radiation or nephrotoxicity. In one single examination a CMR exam can provide LAA anatomy, rule out thrombus and display the pulmonary veins in patients undergoing a pulmonary vein isolation procedure.